Ford Garage

Model A & B
Valve Tappet Adjustment
Rule of Nine

Here is a timesaving method for adjusting or checking the valve tappet clearance when the engine is in the car and you have to hand crank it.

First of all, forget about where the pistons are at. The tappet must be adjusted with thin wrenches when it is on the peak of the cam lobe, and the clearance must be checked when it is on the heel (lowest point). Hand crank the engine a few times and watch the valve stems and you will see what I mean.

Ideally, you would want to adjust the gap when the valve tappet was on the heel of the lobe and the gap could be measured with feelers. Unfortunately, the tappet adjustments are not accessible at that position, and the cam must be rotated and the tappet raised to make an adjustment. At that point the tappet can be adjusted, but the gap cannot be checked. Thus a lot of cranking is typically required.

Here's the trick:

Valves are numbered one through eight from front to back. For whichever valve tappet is on a cam lobe peak at a given instance, there is another valve tappet which is on it's lobe heel.
By knowing the relationship between the valves, **(Rule Of Nine)**, you can do two things at once and adjust and measure multiple valves in steady progression (if you keep track of things). This will greatly minimize the amount of cranking and adjusting necessary.

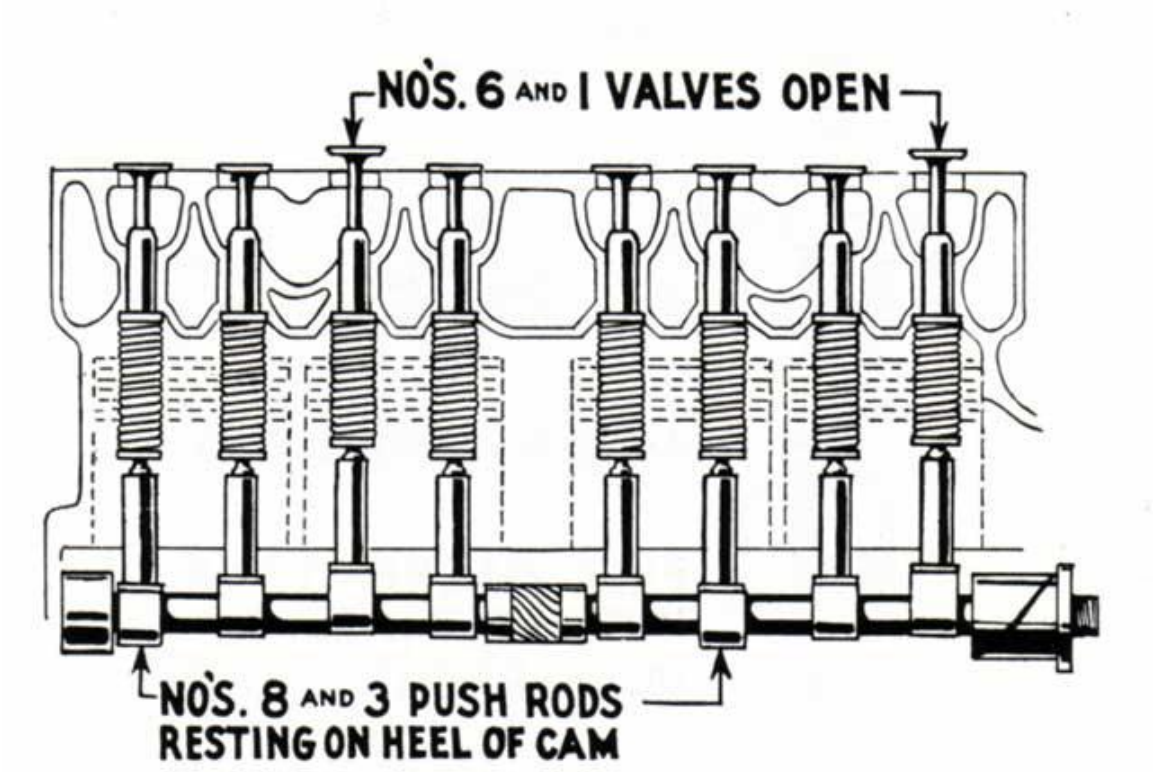


Fig. 685

The way the **Rule Of Nine** relationship works is like this: If for instance #6 valve is full open, then it can be adjusted with wrenches. Also at the same time the #3 valve tappet ("9" minus 6 equals 3) is on the heel of it's cam lobe and it's gap can be measured at the same time as #6 is being adjusted.

Now crank a little more until a different valve is full up, and adjust it and/or measure the gap on the other valve tappet whose sum equals "9" (e.g. if #2 is full up, then #7 can be measured, and #2 could also be adjusted if you know how much). Keep cranking until a different valve is up, and adjust it and measure the gap of the one whose sum equals "9".

Adjustable valve tappets have a 24 pitch bolt, which means that one revolution of the bolt equals changing the gap 0.042 inch. Since the bolt head has six wrench faces, it is fairly easy to estimate rotating the bolt 1/6 of a revolution, or one face, or 0.007 inch.

Furthermore, with a little eyeball engineering, you can guesstimate 1/3rd of a rev of a bolt face with the two wrenches in your hand. This is ~0.002 inch of valve gap adjustment.

With a little practice, you can measure and record the gap when the valve tappet is on it's heel, and can adjust it to within 0.002 inch of where you want it the very first time that same valve is on its peak.

This can really minimize the amount of hand cranking necessary when the engine is in the car. If the engine is on a stand, then perhaps a lot of cranking is not such a big deal.

This procedure works very well on Model A cams, and pretty well on Model B cams, though B cams have a different lobe separation angle and the 'down valve' is not as centered on the heel when the other valve is at its peak.

Vince Falter
September 2000